

REMARKS

Claims 7-15 are pending in the present application. As will be discussed below, Claims 10 and 14 have been amended. No new matter has been added. Accordingly, entry of the present Amendment is requested.

Applicants respectfully submit that the present claimed invention distinguishes over the cited prior art for the reasons discussed in the Amendment Under 37 C.F.R. § 1.116 filed January 17, 2002, which are incorporated herein by reference.

In the Advisory Action dated February 1, 2002, it was indicated with respect to Finneran that “[i]n col. 7, lines 22, 27-28 and lines 36-44, the reference clearly states that the recycle is fed to ‘the secondary heating and carbamate zone’ [and] the reference does not state that only the condensing portion of unit 22 receives the recycle.”

In order to further distinguish the embodiments of the present invention recited in Claims 10 and 14 from Finneran *et al.*, Claims 10 and 14 have been amended to recite “a high pressure stripping unit (2) operating at a pressure substantially corresponding to the pressure in said urea synthesis reactor (1); [and] means for directly feeding a reaction mixture leaving said urea synthesis reactor (1) to said high pressure stripping unit (2) for subjecting”

Support for the Amendments to Claims 10 and 14 can be found in the specification at, for example, page 4, lines 1-2, page 9, lines 1-6 and Fig. 3 (and the corresponding description).

Amended Claims 10 and 14 are now clearly distinguishable from Finneran *et al.* In fact, according to this prior art document, the reaction mixture leaving the urea synthesis reactor is first subjected to a pressure reduction in zone 10 and then fed to the medium pressure decomposition and condensation zone 14 of the urea recovery section (*see*, Finneran *et al.*, col. 5,

lines 40-61). Moreover, the carbamate solution obtained from the second total condenser 48 of the urea recovery section is recycled within the same section to the medium or low pressure decomposition and condensation zone 14, 22, respectively, or, in the alternative, to the high-pressure urea synthesis reactor 2 (*see*, Finneran *et al.*, col. 7, lines 36-43).

In contrast, according to the present claimed invention the reaction mixture leaving the ureas synthesis reaction 1 is first subjected to a decomposition treatment in a high pressure stripping unit 2, and only the so obtained aqueous solution is then fed to the urea recovery section. Moreover, the carbamate solution obtained in the urea recovery section is advantageously fed to the high-pressure stripping unit 2 and thus it is not recycled within the same recovery section or the reactor, as suggested by Finneran *et al.*

In view of the foregoing, Applicants respectfully submit that the embodiment of the present claimed invention recited in Claims 10 and 14 is not *prima facie* obvious from the cited art.

Finally, Applicants emphasize that in Finneran *et al.* it is clearly stated that the liquid recycled from line 62 to zone 14 is fed to the condensing portion only since such liquid is for admixture with the liquid ammonium carbamate condensate (*see*, Finneran, col. 7, lines 39-41).


The ammonium carbamate condensate can only be present in the condensing portion of zone 14, otherwise, in the heating portion, it would be subjected to decomposition (vaporization). Also the recycled liquid (line 62) would be subjected to decomposition if fed to the heating portion of zone 14. Therefore, to allow the required admixture, both the recycled liquid and the carbamate condensate must be in the condensing portion. The same also applies for heating and condensing zone 22. Applicants respectfully submit that in zones 14 and 22, the heating and the

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condensing portions are made of distinct equipment as can be appreciated from col. 5, lines 62-66 (... is heated ... and therefore condensed ...), col. 6, lines 9-12 (... is again heated ... are then condensed ...), and col. 6, lines 16-21.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

10. (Amended) Plant for urea production comprising:
- a urea synthesis reactor (1);
 - a high pressure stripping unit (2) operating at a pressure substantially corresponding to the pressure in said urea synthesis reactor (1);
 - means for directly feeding a reaction mixture leaving said urea synthesis reactor (1) to said high pressure stripping unit (2) for subjecting a-said reaction mixture leaving said first reactor (1)-to a treatment of partial decomposition of the carbamate and partial separation of the free ammonia in aqueous solution present in said mixture;
 - means (6) for condensing at least partially the vapors leaving said stripping unit (2) and of recycling a first portion of carbamate in aqueous solution to said first reactor (1);
 - a recovery section (3, 4, 7, 8) of a flow comprising urea and residual carbamate in aqueous solution leaving said stripping unit (2) for separating the urea produced in the reactor (1) from a second portion of carbamate in aqueous solution;
- characterized in that it comprises:
- means for feeding (26) at least part of said second portion of carbamate in aqueous solution to the stripping unit (2).

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14. (Amended) Method for modernizing a plant for urea production of the type comprising:

- a urea synthesis reactor (1);
 - a high pressure stripping unit (2) operating at a pressure substantially corresponding to the pressure in said urea synthesis reactor (1);
 - means for directly feeding a reaction mixture leaving said urea synthesis reactor (1) to said high pressure stripping unit (2) for subjecting a said reaction mixture leaving said first reactor (1) to a treatment of partial decomposition of the carbamate and partial separation of the free ammonia in aqueous solution present in said mixture;
 - means (6) for condensing at least partially the vapors leaving said stripping unit (2) and of recycling a first portion of carbamate in aqueous solution to said first reactor (1);
 - a recovery section (3, 4, 7, 8) of a flow comprising urea and residual carbamate in aqueous solution leaving said stripping unit (2) for separating the urea produced in the reactor (1) from a second portion of carbamate in aqueous solution;
- characterized in that it comprises the step of:
- providing means for feeding (26) at least part of said second portion of carbamate in aqueous solution to the stripping unit (2).